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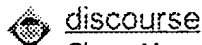
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1 [4b---Linearity, Nonlinearity: Cognitive coherence relations and hypertext: from cinematic p](#)



[discourse](#)

Clara Mancini, Simon Shum Buckingham

September 2001 **Proceedings of the twelfth ACM conference on Hypertext and Hypermedia**

Publisher: ACM Press

Full text available: [pdf\(164.94 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index](#)

In previous work we argued that cinematic language may provide insights into the construction coherence in hypertext, and we identified in the shot juxtaposition of rhetorical patterns the source for cinematic discourse. Here we deepen our analysis, to show how the mechanisms that underlie rhetorical patterns are the same as those providing coherence in written text. We draw on complex psycholinguistic analyses of texts which have derived a set of ...

Keywords: argumentation, cinematic rhetoric, cognitive coherence relations, logical and analogical scholarly hypertext, semiotics

2 [VB2: an architecture for interaction in synthetic worlds](#)



Enrico Gobbetti, Jean-Francis Balaguer, Daniel Thalmann

December 1993 **Proceedings of the 6th annual ACM symposium on User interface software**

Publisher: ACM Press

Full text available: [pdf\(1.39 MB\)](#)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

Keywords: 3D interaction, 3D virtual tools, gestural input, hierarchical constraints, object-oriented interface design, virtual reality

3 [A brief survey of systems providing process or object migration facilities](#)



Mark Nuttall

October 1994 **ACM SIGOPS Operating Systems Review**, Volume 28 Issue 4

Publisher: ACM Press

Full text available: [pdf\(1.19 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [citations](#), [index terms](#)

Migration is the movement of an active entity from one machine to another during execution. It can be used for dynamic load balancing purposes with the aim of gaining increased performance from

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processors than may be gained by schemes simply allocating processes to processors at run time; providing object migration also offer object persistence, improved fault tolerance and potentially remote object invocation (RPC). The survey covers systems providing ...

4 A conceptual model of groupware



Clarence Ellis, Jacques Wainer

October 1994 **Proceedings of the 1994 ACM conference on Computer supported cooperative work**

Publisher: ACM Press

Full text available: pdf(1.23 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index](#)

This paper discusses a conceptual model of groupware consisting of three complementary components: a description of the objects and operations on these objects available in the system; a description (and their orderings) that the users of the system can perform; and a description of the interface between the system, and with other users.

Keywords: CSCW, collaboration technology, coordination model, groupware, ontological model, user interface model

5 A distributed object-oriented database system supporting shared and private databases



Won Kim, Nat Ballou, Jorge F. Garza, Darrell Woelk

January 1991 **ACM Transactions on Information Systems (TOIS)**, Volume 9 Issue 1

Publisher: ACM Press

Full text available: pdf(1.58 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index](#)

ORION-2 is a commercially available, federated, object-oriented database management system implemented at MCC. One major architectural innovation in ORION-2 is the coexistence of a shared database and a number of private databases. The shared database is accessible to all authorized users of the system; a private database is accessible to only the user who owns it. A distributed database system with shared and private databases for individual users is a natural extension of a shared database system.

Keywords: client-server architecture, federated databases, object-oriented databases

6 A general framework for visualizing abstract objects and relations



Tomihisa Kamada, Satoru Kawai

January 1991 **ACM Transactions on Graphics (TOG)**, Volume 10 Issue 1

Publisher: ACM Press

Full text available: pdf(2.26 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index](#)

Pictorial representations significantly enhance our ability to understand complicated relations and means that information systems strongly require user interfaces that support the visualization of information with a wide variety of graphical forms. At present, however, these difficult visualization problems have not been solved. We present a visualization framework for translating abstract objects and relations represented in textual forms, into pictorial forms.

7 A model of multimedia information retrieval



Carlo Meghini, Fabrizio Sebastiani, Umberto Straccia

September 2001 **Journal of the ACM (JACM)**, Volume 48 Issue 5

Publisher: ACM Press

Full text available: pdf(5.69 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index](#)

Research on multimedia information retrieval (MIR) has recently witnessed a booming interest. One of this research trend is its simultaneous but independent materialization within several fields of research. The resulting richness of paradigms, methods and systems may, on the long run, result in a fragmentation of efforts and slow down progress. The primary goal of this study is to promote an integration of research efforts in the field of multimedia information retrieval.

techniques for MIR by contributing a conceptual model ...


Keywords: Description logics, fuzzy logics, multimedia information retrieval

8 A multimodal learning interface for grounding spoken language in sensory perceptions

 Chen Yu, Dana H. Ballard

July 2004 **ACM Transactions on Applied Perception (TAP)**, Volume 1 Issue 1

Publisher: ACM Press


Full text available:  [pdf\(1.73 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

We present a multimodal interface that learns words from natural interactions with users. In lig human language development, the learning system is trained in an unsupervised mode in which everyday tasks while providing natural language descriptions of their behaviors. The system col signals in concert with user-centric multisensory information from nonspeech modalities, such a video, gaze positions, head directions, and hand moveme ...


Keywords: Multimodal learning, cognitive modeling, multimodal interaction

9 A neuroidal architecture for cognitive computation

 Leslie G. Valiant

September 2000 **Journal of the ACM (JACM)**, Volume 47 Issue 5

Publisher: ACM Press


Full text available:  [pdf\(173.68 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index](#)

An architecture is described for designing systems that acquire and ma nipulate large amounts or so-called commonsense, knowledge. Its aim is to exploit to the full those aspects of computa are known to offer powerful solutions in the acquisition and maintenance of robust knowledge b architecture makes explicit the requirements on the basic computational tasks that are to be pe designed to make this computationally tractable even ...


Keywords: PAC learning, cognitive computation, computational learning, learning relations, no reasoning, robust reasoning

10 A specification language for direct-manipulation user interfaces

 Robert J. K. Jacob

October 1986 **ACM Transactions on Graphics (TOG)**, Volume 5 Issue 4


Publisher: ACM Press

Full text available:  [pdf\(2.75 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index](#)


A direct-manipulation user interface presents a set of visual representations on a display and a manipulations that can be performed on any of them. Such representations might include scree bars, spreadsheet cells, or flowchart boxes. Interaction techniques of this kind were first seen ir graphics systems; they are now proving effective in user interfaces for applications that are not graphical. Although they are often easy to learn and ...

11 A spreading activation approach to text illustration

 K. Hartmann, Th. Strothotte

June 2002 **Proceedings of the 2nd internati nal symp sium n Smart graphics SMARTGI**

Publisher: ACM Press

Full text available:  [pdf\(1.66 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)

In this paper we present a new approach to implement intelligent multimedia interfaces. Its cer media-independent formal representation of the presented knowledge and media-specific realiz.

Reference hypotheses for media objects are established automatically. Subsequently, the reference hypotheses are validated and weighted by a spreading activation algorithm. Moreover, the spreading activation determines those entities of the formal representation which ...

Keywords: intelligent multimedia interfaces, spreading activation, text illustration

12 A statechart-based model for hypermedia applications



Maria Cristina Ferreira de Oliveira, Marcelo Augusto Santos Turine, Paulo Cesar Masiero
January 2001 **ACM Transactions on Information Systems (TOIS)**, Volume 19 Issue 1

Publisher: ACM Press

Full text available: [pdf\(215.08 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index](#)

This paper presents a formal definition for HMBS (Hypermedia Model Based on Statecharts). HMBS defines the structure and execution semantics of statecharts to specify both the structural organization and semantics of hypermedia applications. Statecharts are an extension of finite-state machines and a generalization of hypergraph-based hypertext models. Some of the most important features are the ability to model hierarchy and synchronization of information ...

Keywords: HMBS, browsing semantics, hypermedia specification, navigational model, statecharts

13 A structure from manipulation for text-graphic objects



Fred H. Lakin
July 1980 **ACM SIGGRAPH Computer Graphics , Proceedings of the 7th annual conference on computer graphics and interactive techniques SIGGRAPH '80**, Volume 14 Issue 3

Publisher: ACM Press

Full text available: [pdf\(676.91 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index](#)

The general purpose graphics systems of the future will need a simple logic for visual objects—underlying both text and graphics. As an experiment, perhaps the immediate handling of visual objects can provide the starting point for developing that structure. This paper describes the PAM graph which is the structure of text-graphic objects arises directly out of manual manipulation. The need for a manipulation determine the

Keywords: Computing with text-graphic forms, Front-end design, Graphics command language, programming language, Hand powered animation, Interactive computer graphics, LISP, Man-machine interaction, Manipulative grammar, Phenomenology, Text-graphic objects, Visual linguistics

14 A survey and analysis of Electronic Healthcare Record standards



Marco Eichelberg, Thomas Aden, Jörg Riesmeier, Asuman Dogac, Gokce B. Laleci
December 2005 **ACM Computing Surveys (CSUR)**, Volume 37 Issue 4

Publisher: ACM Press

Full text available: [pdf\(844.11 KB\)](#)



Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Medical information systems today store clinical information about patients in all kinds of propriety formats. To address the resulting interoperability problems, several Electronic Healthcare Record standards for clinical content for the purpose of exchange are currently under development. In this article, we examine some of the most relevant Electronic Healthcare Record standards, examine the level of interoperability and assess their functionality in terms of ...

Keywords: Electronic Healthcare Record standards, eHealth, interoperability

15 A task- and data-parallel programming language based on shared objects

Saniya Ben Hassen, Henri E. Bal, Criel J. H. Jacobs

-  November 1998 **ACM Transactions on Programming Languages and Systems (TOPLAS)**, Volume 20 Number 6
Publisher: ACM Press
Full text available:  [pdf\(434.44 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index](#)


Many programming languages support either task parallelism, but few languages provide a unified way of writing applications that need both types of parallelism or data parallelism. We present a program and system that integrates task and data parallelism using shared objects. Shared objects may be executed on one processor or may be replicated. Objects may also be partitioned and distributed on several processors. Task parallelism is achieved by forking processes remotely at run time.

Keywords: data parallelism, shared objects, task parallelism

16 [A taxonomy of Data Grids for distributed data sharing, management, and processing](#)

-  Srikumar Venugopal, Rajkumar Buyya, Kotagiri Ramamohanarao
June 2006 **ACM Computing Surveys (CSUR)**, Volume 38 Issue 1

Publisher: ACM Press

Full text available:  [pdf\(1.70 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)


Data Grids have been adopted as the next generation platform by many scientific communities to store, access, transport, process, and manage large data collections distributed worldwide. They combine distributed computing technologies with high-performance networking and wide-area storage management. In this article, we discuss the key concepts behind Data Grids and compare them with other data sharing paradigms such as content delivery networks, peer-to-peer networks, and cloud computing.

Keywords: Grid computing, data-intensive applications, replica management, virtual organization

17 [A visual retrieval environment for hypermedia information systems](#)

-  Dario Lucarella, Antonella Zanzi
January 1996 **ACM Transactions on Information Systems (TOIS)**, Volume 14 Issue 1

Publisher: ACM Press

Full text available:  [pdf\(1.76 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index](#)


We present a graph-based object model that may be used as a uniform framework for direct manipulation of multimedia information. After an introduction motivating the need for abstraction and structuring in hypermedia systems, we introduce the data model and the notion of perspective, a form of data organization that acts as a user interface to the system, providing control over the visibility of the objects and the way they are presented. The perspective is defined to include an intension and an extension.

Keywords: browsing, complex objects, direct object manipulation, graph-oriented models, hypermedia applications, information filtering, visual interface

18 [Abstracts and available technical reports](#)

-  SIGACT News Staff
July 1983 **ACM SIGACT News**, Volume 15 Issue 3


Publisher: ACM Press

Full text available:  [pdf\(1.59 MB\)](#) Additional Information: [full citation](#)

19 [ABSTRACTS OF INTEREST](#)

-  Ben Shneiderman
October 1992 **ACM SIGCHI Bulletin**, Volume 24 Issue 4

Publisher: ACM Press

Full text available:  pdf(1.83 MB)

Additional Information: [full citation](#), [abstract](#)

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20 ABSTRACTS OF INTEREST



Susanne M. Humphrey, Ben Shneiderman

July 1993 **ACM SIGCHI Bulletin**, Volume 25 Issue 3

Publisher: ACM Press

Full text available:  pdf(2.00 MB)

Additional Information: [full citation](#), [abstract](#)

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0006209648 20051201.

Title

A new approximation to the problem of the classification of sugar cane somatic embryos, based on real **image** understanding techniques.

C nference information

I Simposio de Inteligencia Artificial (1st Artificial Intelligence Symposium), Havana, Cuba, 24-28 March 1997.

Source

I Simposio de Inteligencia Artificial (1st Artificial Intelligence Symposium), 1997, p. 140-5, 11 refs, pp. 150, ISBN: 959-7056-10-0.

Publisher: Inst. Cibernetica, Matematica y Fisica, Havana, Cuba.

Author(s)

Guevara-Lopez-M-A, Rodriguez-Morales-R.

Author affiliation

Guevara Lopez, M.A., Centro de Bioplasmas, Univ. de Ciego de Avila, Cuba.

Abstract

Image understanding methods and techniques have been applied in plant biotechnology, including the classification of the somatic embryos of different cultures. This paper presents a framework to solve this problem, in this case, the classification of sugar cane somatic embryos. This formalism allows one to combine **digital image** processing, pattern recognition and artificial intelligence techniques, using a suitable **semantic network**. The **semantic network** has been defined to have the appropriate syntax, **semantic** and control strategies for this type of problem.

Descriptors

BIOTECHNOLOGY; IMAGE-CLASSIFICATION; IMAGE-RECOGNITION; SEMANTIC-NETWORKS.

Classification codes

B6135E Image-recognition*;
C7330 Biology-and-medical-computing*;
C5260B Computer-vision-and-image-processing-techniques;

C1250M Image-recognition;
C1230 Artificial-intelligence;
C6170K Knowledge-engineering-techniques.

Keywords

somatic-embryogenesis; sugar-cane; **image-understanding**; plant-biotechnology; somatic-embryos;
digital-image-processing; pattern-recognition; artificial-intelligence; **semantic-network**;
 knowledge-representation; low-level-processing; high-level-processing.

Treatment codes

P Practical;
T Theoretical-or-mathematical.

Language

Spanish.

Publication type

Conference-proceedings.

Availability

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 esquina C Vedado, Plaza de la Revolución, Havana 10400, Cuba.

Publication year

1997.

Publication date

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Inspec - 1898 to date (INZZ)

Accession number & update

0006142644 20051201.

Title

Knowledge-based vision techniques to classify sugarcane somatic embryos.

Conference information

3rd Taller Iberoamericano de Reconocimiento de Patrones (2nd Ibero-American Pattern Recognition Symposium), Ciudad, Mexico, 23-27 March 1998.

Source

3rd Taller Iberoamericano de Reconocimiento de Patrones (2nd Ibero-American Pattern Recognition Symposium), 1998, p. 293-302, 12 refs, pp. 587.
 Publisher: Inst. Cibernética, Matemática y Física, La Habana, Cuba.

Author(s)

Lopez-M-A-G, Morales-R-R.

Editor(s): Shulcloper-J-R, Cortes-M-L, Gutierrez-S-M, Cuevas-W-M.



Author affiliation

Lopez, M.A.G., Bioplants Centre, Ciego de Avila Univ., Cuba.

Abstract

Methods and techniques for **image** analysis were applied to the area of plant biotechnology, among other things, to classify somatic embryos of different plants. The aim of this paper is to propose a new knowledge-based framework to classify sugarcane somatic embryos. This formalism has the possibility to combine **digital image** processing, pattern recognition and artificial intelligence techniques, based on a suitable definition of a **semantic network**, in which the appropriate syntax, **semantic** and control strategies for this kind of problems have been defined.

Descriptors

 ARTIFICIAL-INTELLIGENCE;  BIOTECHNOLOGY;  COMPUTER-VISION;  KNOWLEDGE-

BASED-SYSTEMS; PATTERN-RECOGNITION.

Classification codes

B6135E Image-recognition*;

C5260B Computer-vision-and-image-processing-techniques*;

C6170 Expert-systems-and-other-AI-software-and-techniques;

C1250M Image-recognition.

Keywords

knowledge-based-vision-techniques; sugarcane-somatic-embryos; **image-** analysis; plant-biotechnology; **digital-image-processing**; pattern-recognition; artificial-intelligence; **semantic-network**; control-strategies.

Treatment codes

A Application;

P Practical.

Language

English.

Publication type

Conference-proceedings.

Publication year

1998.

Publication date

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Edition

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0005774669 20051201.

Title

Knowledge-based **image** segmentation of chest X-rays.

C nference information

Conference Proceedings DICTA-95. **Digital Image** Computing: Techniques and Applications, Brisbane, Qld., Australia, 6-8 Dec. 1995.

Sponsor(s): Sun Microsyst; Leica Instrum; Silicon Graphics; Ceanet /Mathworks; Arnotts's Biscuits; et al.

Source

Conference Proceedings DICTA-95. **Digital Image** Computing: Techniques and Applications, 1995, p. 300-5, 14 refs, pp. 695.

Publisher: Australian Pattern Recognition Soc, Brisbane, Qld., Australia.

Author(s)

Brown-M-S, Wilson-L-S, Gill-R-W, Vuwong-V, Doust-B-D.

Editor(s): Maeder-A, Lovell-B.

Author affiliation

Brown, M.S., Wilson, L.S., Gill, R.W., Vuwong, V., Ultrasonics Lab., CSIRO, Chatswood, NSW.

Abstract

An expert assistant system has been implemented to identify major lung structures on chest X-rays. This system is characterised by the use of an explicit anatomical model for guiding **image** segmentation, reasoning about the anatomy, and visualising the anatomical structures implied by the segmentation. Such an approach can provide decision support, with the radiologist conducting a form of dialogue with the expert assistant to query the knowledge base and test hypotheses. The strategy is to compare a modality-independent model with the **image** by way of an intermediate symbolic feature

space. The system uses a blackboard architecture to allow communication between its components. The anatomical model forms a major component of the system, and is organised as a frame-based **semantic network**. The inference engine handles decision making during the process of segmenting major anatomical landmarks in the chest X-ray.

Descriptors

BLACKBOARD-ARCHITECTURE; DATA-VISUALISATION; DECISION-SUPPORT-SYSTEMS;
DIAGNOSTIC-EXPERT-SYSTEMS; DIAGNOSTIC-RADIOGRAPHY; IMAGE-SEGMENTATION;
INFERENCE-MECHANISMS; INTERACTIVE-SYSTEMS; LUNG; MEDICAL-EXPERT-
SYSTEMS; MEDICAL-IMAGE-PROCESSING; QUERY-FORMULATION; SEMANTIC-
NETWORKS.

Classification codes

A8770E Patient-diagnostic-methods-and-instrumentation*;
A8760J X-rays-and-particle-beams-medical-uses;
B7510 Biomedical-measurement-and-imaging*;
B6140C Optical-information-image-and-video-signal-processing;
C7330 Biology-and-medical-computing*;
C6170 Expert-systems-and-other-AI-software-and-techniques;
C5260B Computer-vision-and-image-processing-techniques;
C7102 Decision-support-systems.

Keywords

knowledge-based-system; **image-segmentation**; chest-X-rays; expert-assistant-system; lung-structures; anatomical-model; reasoning; visualisation; decision-support; dialogue-system; querying; modality-independent-model; intermediate-symbolic-feature-space; blackboard-architecture; **frame-based-semantic-network**; inference-engine; decision-making.

Treatment codes

A Application;
P Practical.

Language

English.

Publication type

Conference-proceedings.

Availability

Available from: Australian Pattern Recognition Society, c/o The Secretary, School of Electrical and Electronic Systems Engineering, Queensland University of Technology, GPO Box 2434, Brisbane, Queensland 4000, Australia.

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0005178897 20051201.

Title

Fuzzy frame approach to data representation in **image** archiving systems.

Conference information

Digital Image Storage and Archiving Systems, Philadelphia, PA, USA, 25-26 Oct. 1995.
 Sponsor(s): SPIE.

Source

Proceedings of the SPIE - The International Society for Optical Engineering, {Proc-SPIE-Int-Soc-Opt-Eng-USA}, 1995, vol. 2606, p. 26-34, 3 refs, CODEN: PSISDG, ISSN: 0277-786X.

Publisher: SPIE-Int. Soc. Opt. Eng, USA.

Author(s)

Stepanov-A-A.

Author affiliation

Stepanov, A.A., State Res. Inst. of Aviation Syst., Moscow.

Abstract

The fuzzy frame approach to representation for images and **image** features is offered. The essence of the given approach consists that the database represents a **semantic network** of frames with fuzzy fillings for slots (fuzzy frames) and the query processing is a decision making in a fuzzy situation. The decision making process is formalized as the search of the best path in the frame tree. This approach can be the methodological basis for development of intelligent knowledge bases under the images, since the **semantic** filling of frame can be most different (purely images, textual records, lists of characteristic or correspondent points, lists of objects and etc.).

Descriptors

 FUZZY-SET-THEORY;  IMAGE-REPRESENTATION;  PACS;  SPATIAL-DATA-STRUCTURES;  VISUAL-DATABASES.

Classification codes

C5260B Computer-vision-and-image-processing-techniques*;

C6120 File-organisation;

C6160S Spatial-and-pictorial-databases;

C1160 Combinatorial-mathematics.

Keywords

PACS; visual-database; **image-processing**; **image-representation**; fuzzy-frame-approach; data-representation; **image-archiving-system**; **image-** feature; **semantic-network**; fuzzy-fillings-for-slots; query-processing; decision-making; decision-making-process; frame-tree; spatial-data-structure; **semantic-filling**.

Treatment codes

P Practical;

I Theoretical-or-mathematical.

Language

English.

Publication type

~~Conference-proceedings~~; ~~Journal-paper~~.

Availability

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Publication date

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- 1 Ontology-based layered semantics for precise OA&D modeling.
- 2 Induction of knowledge from data by clustering.
- 3 Behind the inheritance relations in a semantic network.
- 4 A flexible tool for prototyping ALV road following algorithms.
- 5 An expert vision system for autonomous land vehicle road following.

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Inspec - 1898 to date (INZZ)

Accession number & update

0005829822 20051201.

Title

Ontology-based layered semantics for precise OA&D modeling.

Conference information

Object-Oriented Technology. ECOOP'97 Workshop Reader. ECOOP'97 Workshops. Proceedings, Jyvaskyla, Finland, 9-13 June 1997.

Source

Object-Oriented Technology, ECOOP '97 Workshop Reader. ECOOP'97 Workshops Proceedings, 1998, p. 151-4, 6 refs, pp. xiv+555, ISBN: 3-540-64039-8.

Publisher: Springer-Verlag, Berlin, Germany.

Author(s)

Bezivin-J., Lemesle-R.

Editor(s): Bosch-J., Mitchell-S.





Author affiliation

Bezivin, J., Lemesle, R., Lab. de Recherche en Sci. de Gestion, Nantes Univ., France.

Abstract

OSMOSIS (Bezivin, 1995) is a research platform intended to investigate the various forms of products and processes in **object-oriented** software production. The kernel of this system is made of a minimal representation support called sNets, a typed, reflective and modular kind of **semantic network**. Each model represented in this **network** is composed of a number of typed entities (nodes) and relations between these entities (links) i.e. each model is a partition in the sNet called a universe. For each such universe, there is another one called its **semantic** universe defining the corresponding ontology. In short, an ontology specifies the concepts that may be used and the possible relations between these concepts. The kernel sNet notation may be qualified of a NOON (nonobject-oriented notation) because the concepts of **class** or **object** are not built-in in the system. One reason for this choice is to cater with many different semantics for classes, objects and instanceof/isa relations. The authors stress some of the consequences of these choices on the architecture of meta-levels and show the strong relation between this architecture and the precise definition of the instantiation relations in different contexts. The illustration is based on CDIF (Ernst, 1997).

Descriptors

 COMPUTATIONAL-LINGUISTICS;  OBJECT-ORIENTED-METHODS;  OBJECT-ORIENTED-PROGRAMMING;  SEMANTIC-NETWORKS.

Classification codes

C6110J Object-oriented-programming*;
C6110F Formal-methods;
C4210L Formal-languages-and-computational-linguistics.

Keywords

precise-OA&D-modeling; ontology-based-layered-semantics; OSMOSIS-research-platform; **object-oriented-software-production**; minimal-representation-support; sNets; **semantic-network**; typed-entities; **semantic-universe**; kernel-sNet-notation; nonobject-oriented-notation; architecture; meta-levels.

Treatment codes

I Theoretical-or-mathematical.

Language

English.

Publication type

Conference-proceedings.

Publication year

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Publication date

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Edition

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Inspec - 1898 to date (INZZ)**Accession number & update**

0004677451 20051201.

Title

Induction of knowledge from data by clustering.

Conference information

Proceedings of Sum Computer Simulation Conference (SCSC'93), Boston, MA, USA, 19-21 July 1993.
Sponsor(s): Soc. Comput. Simulation.

Source

Proceedings of the 1993 Summer Computer Simulation Conference. Twenty-Fifth Annual Summer Computer Simulation Conference, 1993, p. 278-82, 36 refs, pp. xvii+1078.
Publisher: SCS, San Diego, CA, USA.

Author(s)

[Wildberger-A-M.](#)
Editor(s): [Schoen-J.](#)

Author affiliation

Wildberger, A.M., Office of Exploratory and Appl. Res., Electr. Power Res. Inst., Palo Alto, CA, USA.

Abstract

Knowledge acquisition for the development of expert systems is usually performed by interviewing one or more human experts with the expectation of eliciting from them an intuitive grasp of the domain area that has been distilled from their experience. On the other hand, cybernetic methods of knowledge acquisition attempt to create an expert system by automating the induction of general rules from data derived from the domain area. Cluster analysis is a time-honored method of classifying, categorizing, grouping or dividing raw data into 'chunks' that are in some sense 'natural' and which serve to produce a generalization for which the data are examples. Clustering competes with other

cybernetic methods of knowledge acquisition including those derived from the connectionist school of artificial intelligence, such as artificial neural networks and genetic algorithms, as well as the formal methods of mathematical statistics. Hierarchical clustering methods can automatically construct the "class and bject" (or frame and **semantic network**) representations of knowledge, complete with their conventional top-down inheritance schema. It is also possible to use clustering to induce qualitative rules directly from quantitative data, resulting in the more common rule-based expert system. By introducing probabilistic elements into the measure of similarity, clustering can also be used to generate membership functions for fuzzy set models.

Descriptors

EXPERT-SYSTEMS; FUZZY-SET-THEORY; INFERENCE-MECHANISMS; INHERITANCE;
KNOWLEDGE-ACQUISITION; KNOWLEDGE-REPRESENTATION; PATTERN-RECOGNITION.

Classification codes

C1230 Artificial-intelligence*;
C6170 Expert-systems-and-other-AI-software-and-techniques;
C1250 Pattern-recognition.

Keywords

induction; data-clustering; knowledge-acquisition; probabilistic-elements; interviewing; cybernetic-methods; cluster-analysis; generalization; connectionism; mathematical-statistics; hierarchical-clustering-methods; **class-and-object-representations**; frame-based-representation; **semantic-network-representation**; top-down-inheritance-schema; qualitative-rules; quantitative-data; rule-based-expert-system; similarity-measure; membership-functions; fuzzy-set-models; classification.

Treatment codes

P Practical;
T Theoretical-or-mathematical.

Language

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Publication type

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Publication year

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Edition

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Title

Behind the inheritance relations in a **semantic network**.

Conference information

SOUTHEASTCON '90. Proceedings (Cat. No.90CH2883-7), New Orleans, LA, USA, 1-4 April 1990.
Sponsor(s): IEEE; South Central Bell; Northern Telecom; AT&T; et al.

Source

SOUTHEASTCON '90. Proceedings (Cat. No.90CH2883-7), 1990, p. 289-96 vol.1, 11 refs, pp. 3 vol.
(x+x+x+1126).
Publisher: IEEE, New York, NY, USA.

Author(s)

Yang-Y-K.


Author affiliation

Yang, Y.-K., Harris Semicond., Melbourne, FL, USA.

Abstract

There are many confused meanings on the use of ISA (is-a), AKO (a-kind-of), and ISPART (is-part-of) relations. This problem can be solved only by defining the precise meaning of the ISA, AKO and ISPART relations, and by recognizing either a **class** node or an **object** node for a given node in a **semantic network**. The author makes clear, precise and consistent definitions for these inheritance relations based on the two fundamental types of information that these relations are intended to represent: classes and objects. The features explored from these relations explain the use of these three relations and what properties each has. By dividing the properties related by ISA, AKO and ISPART relations into property values and property attributes, it is found that a property value relates to a specific **class** or **object** only and is not an inheritable property, while a property attribute corresponds to the universal quantification in predicate logic and is inheritable by the descendants of a **class** or **object**.

Descriptors

 FORMAL-LOGIC.

Classification codes

C4210 Formal-logic*.

Keywords

is-a-relations; a-kind-of-relations; is-part-of-relations; inheritance-relations; **semantic-network**; **class-node**; **object-node**; property-values; property-attributes; universal-quantification; predicate-logic; descendants.

Treatment codes

T Theoretical-or-mathematical.

Language

English.

Publication type

Conference-proceedings.

Digital object identifier

10.1109/SECON.1990.117819.

Publication year

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Publication date

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Edition

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Accession number & update

0003703591 20051201.

Title

A flexible tool for prototyping ALV road following algorithms.

Source

IEEE Transactions on Robotics and Automation, {IEEE-Trans-Robot-Autom-USA}, April 1990, vol. 6, no. 2, p. 232-42, 15 refs, CODEN: IRAUEZ, ISSN: 1042-296X, USA.

Author(s)

Dickinson-S-J, Davis-L-S.

Author affiliation







Dickinson, S.J., Davis, L.S., Center for Autom. Res., Maryland Univ., College Park, MD, USA.

Abstract

A production system model of problem-solving is applied to the design of a vision system by which an autonomous land vehicle (ALV) navigates roads. The ALV vision task consists of hypothesizing objects

in a scene model and verifying these hypotheses using the vehicle's sensors. **Object** hypothesis generation is based on the local navigation task, an a priori road map, and the contents of the scene model. Verification of an **object** hypothesis involves directing the sensors towards the expected location of the **object**, collecting evidence in support of the **object**, and reasoning about the evidence. Constructing the scene model consists of building a **semantic network** of **object** frames exhibiting component, spatial, and inheritance relationships. The control structure is provided by a set of communicating production systems implementing a structured blackboard; each production system contains rules for defining the attributes of a particular **class** of **object** frame. The combination of production system and **object-oriented** programming techniques results in a flexible control structure able to accommodate new **object** classes, reasoning strategies, vehicle sensors, and image analysis techniques.

Descriptors

 ARTIFICIAL-INTELLIGENCE;  COMPUTERISED-NAVIGATION;  INFERENCE-MECHANISMS;
 MOBILE-ROBOTS;  OBJECT-ORIENTED-PROGRAMMING;  PROBLEM-SOLVING.

Classification codes

C3390 Robotics*;
C5260B Computer-vision-and-image-processing-techniques;
C3360F Control-of-other-land-traffic-systems;
C1230 Artificial-intelligence;
C6170 Expert-systems-and-other-AI-software-and-techniques.

Keywords

ALV; road-following-algorithms; production-system-model; problem-solving; vision-system;
 autonomous-land-vehicle; scene-model; navigation; reasoning; **semantic-network**; structured-
 blackboard; **object-oriented-programming**; image-analysis.

Treatment codes

P Practical.

Language

English.

Publication type

Journal-paper.

Availability

CCCC: 1042-296X/90/0400-0232\$01.00.

Digital object identifier

10.1109/70.54738.

Publication year

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Publication date

19900400.


Edition

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Accession number & update

0003248027 20051201.

Title

An expert vision system for autonomous land vehicle road following.

Conference information

Proceedings CVPR '88: The Computer Society Conference on Computer Vision and Pattern Recognition
 (Cat. No.88CH2605-4), Ann Arbor, MI, USA, 5-9 June 1988.
 Sponsor(s): IEEE.

Source

Proceedings CVPR '88: The Computer Society Conference on Computer Vision and Pattern Recognition (Cat. No.88CH2605-4), 1988, p. 826-31, 13 refs, pp. xv+975, ISBN: 0-8186-0862-5.
 Publisher: IEEE Comput. Soc. Press, Washington, DC, USA.

Author(s)

Dickinson-S-J, Davis-L-S.

Author affiliation

Dickinson, S.J., Davis, L.S., Center for Autom. Res., Maryland Univ., College Park, MD, USA.

Abstract

A production-system model of problem solving is applied to the design of a vision system by which an autonomous land vehicle (ALV) navigates roads. The ALV vision task consists of hypothesizing objects in a scene model and verifying these hypotheses using the vehicles sensors. **Object** hypothesis generation is based on the local navigation task, and a priori road map, and the contents of the scene model. Verification of an **object** hypothesis involves directing the sensors toward the expected location of the **object**, collecting evidence in support of the **object**, and reasoning about the evidence. Constructing the scene model consists of building a **semantic network** of **object** frames exhibiting component, spatial, and inheritance relationships. The control structure is provided by a set of communicating production systems implementing a structured blackboard; each production system contains the rules for defining the attributes of a particular **class** of **object** frame.

Descriptors

ARTIFICIAL-INTELLIGENCE; COMPUTER-VISION; COMPUTERISED-NAVIGATION;
 COMPUTERISED-PATTERN-RECOGNITION; EXPERT-SYSTEMS; ROBOTS.

Classification codes

C7420 Control-engineering-computing*;
 C5260B Computer-vision-and-image-processing-techniques;
 C6170 Expert-systems-and-other-AI-software-and-techniques;
 C3390 Robotics.

Keywords

computerised-navigation; computer-vision; computerised-pattern-recognition; mobile-robots; expert-vision-system; autonomous-land-vehicle; road-following; production-system-model; problem-solving; scene-model; reasoning; **semantic-network**; structured-blackboard.

Treatment codes

P. Practical.

Language

English.

Publication type

Conference-proceedings.

Availability

CCCC: CH2605-4/88/0000-0826\$01.00.

Digital object identifier

10.1109/CVPR.1988.196329.

Publication year

1988.

Publication date

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Edition

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